



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,144	01/17/2002	Khosro Shamsaifar	PARA 49784	1066

7590 03/17/2003

Robert P. Lenart
Pietragallo, Bosick & Gordon
One Oxford Centre, 38th Floor
301 Grant Street
Pittsburgh, PA 15219

EXAMINER

BETTENDORF, JUSTIN P

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 03/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/051,144	SHAMSAIFAR ET AL.	
	Examiner	Art Unit	
	Justin P. Bettendorf	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the different resonators (i.e. coaxial line, dielectric, and waveguide) as recited in claim 2 must be shown or the feature(s) canceled from the claim(s). Also, the subject matter of claims 8 and 9 need to shown (i.e. MEM capacitor) and claims 10 and 11 (i.e. waveguide coupling, magnetic coupling probe, additional coupling means). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: On page 4, the last full paragraph (which also bridges over to page 5) appears to be describing --Figure 6-- and not "Figure 5" as indicated by the paragraph. Appropriate correction is required.

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The subject matter of claim 10 (i.e. see objection to the drawings).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2817

5. Claims 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 18 recites "the layer" which lacks an antecedent basis in claim 1.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda United States Patent No. 6,018,282 in view of Sogo et al. United States Patent No. 5,192,926.

The Tsuda reference discloses in figure 22 a voltage-controlled tunable stripline filter comprising: an input and an output 66, 66a; a plurality of resonators 55 coupled to each other and the input/output; a plurality of electronically tunable capacitors 53 formed of tunable dielectric film 62 such as BST (e.g. $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3$) between electrodes 63 and 56A (see col. 7,

Art Unit: 2817

lines 38-47, with respect to claims 5, 6, and 18). With respect to claim 7, figure 2 shows a gap between electrodes 55B and 56A for tunable capacitor 53. With respect to claim 10, figure 1 shows that the input/output electrodes form "electrical coupling probes". However, the reference does not show "means for coupling non-adjacent ones of the resonators".

83 The Sogo et al. reference discloses in figure 2 a stripline filter with a microstrip bypass 7 having capacitive couplings 8₁, 8₂ cross-connecting non-adjacent resonators (see figure 6) in order to sharpen the frequency response (col. 1, lines 36-45). Figure 8B shows an embodiment of the bypass with an adjustable capacitor in the middle in order adjust the attenuation (see col. 3, lines 51-55).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have added a non-adjacent bypass coupling means as taught by Sogo et al. to the tunable filter of Tsuda because such a modification would have advantageously provided a sharper frequency response.

With respect to claim 11, "additional coupling means" would have been obvious for the same reasons, i.e. to form additional attenuation poles. With respect to microstrip as recited in claims 12 and 13, it should be noted that a microstrip is art-recognized equivalent strip resonator to stripline and would have been considered a mere substitution of art-recognized equivalent strip resonators (i.e. a microstrip is a stripline without the second ground plane, as would have been well known). With respect to substituting a voltage tunable dielectric capacitor in place of the tunable capacitor disclosed in the bypass of Sogo et al., such a modification would have been obvious to the filter of Tsuda/Sogo et al. because it would have allowed tuning by electronic means; thereby providing greater flexibility.

Art Unit: 2817

With respect to the use of MEM capacitors such as parallel plate MEM capacitors (i.e. claims 8 and 9), such capacitors are well known and use thereof would have been considered a mere substitution of art-recognized equivalent tunable capacitors.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda in view of Sogo et al. as applied above, and further in view of Chiu et al. United States Patent No. 6,074,971 (cited by the applicant).

The Tsuda/Sogo et al. combination shows the claimed tunable filter that includes a layer of $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3$ but does not disclose a non-tunable component.

The Chiu et al. reference discloses $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3/\text{Mg-O}$ based compound/rare earth oxide composite that provides the advantage of low loss tangents, increased tunability; and increased temperature stability for uses such as capacitors (abstract and col. 1, lines 33-37).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted the $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3/\text{Mg-O}$ based compound/rare earth oxide composite (i.e. with non tunable component) of Chiu et al. in place of the $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3$ because such a modification would have advantageously increased tenability thereby suggesting the modification.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Zhu et al. U. S. Patent Application Publication No. 2002/0093400 discloses an electronic tunable filter with dielectric varactors.

Art Unit: 2817

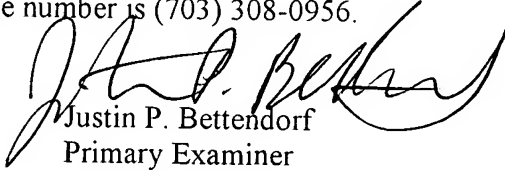
b. Toncich U. S. Patent Application Publication No. 2002/0149448 also discloses an electronic tunable filter with dielectric varactors.

c. Takeda United States Patent No. 6,300,849 discloses multiple bypass connections on a filter to change the frequency response of a filter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin P. Bettendorf whose telephone number is (703) 308-2780. The examiner can normally be reached on 6:00-3:30 (M-F, 1st Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (703) 308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Justin P. Bettendorf
Primary Examiner
Art Unit 2817

jpb
March 10, 2003